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CA INDEXING COPYRIGHT (C) 2000 AMERICAN CHEMICAL SOCIETY (ACS)

=> s amylase#

L1 15932 AMYLASE#

=> s phospholipase#

L2 3486 PHOSPHOLIPASE#

=> s l1 and l2

L3 319 L1 AND L2

=> s bread# or dough#

L4 44765 BREAD# OR DOUGH#

=> s l3 and l4

L5 22 L3 AND L4

=> d 1-22

L5 ANSWER 1 OF 22 FSTA COPYRIGHT 2000 IFIS
AN 2000(04):M0506 FSTA FS FSTA
TI Preparation of **dough** and baked products.
AU Spendler, T.; Nilsson, L.; Fuglsang, C. C.
CS Novo Nordisk A/S
SO PCT International Patent Application
PI WO 99/53769 A1 1999
PRAI DK 98-0543 20 Apr. 1998 (Novo Nordisk, DK-2880 Bagsvaerd, Denmark)
DT Patent (Patent)
LA English

L5 ANSWER 2 OF 22 FSTA COPYRIGHT 2000 IFIS
AN 95(03):M0083 FSTA FS FSTA
TI Phospholipid hydrolysate and antistaling **amylase** effects on retrogradation of starch in **bread**.
AU Kweon, M. R.; Park, C. S.; Auh, J. H.; Cho, B. M.; Yang, N. S.; Park, K. H.

CS Dep. of Food Sci. & Tech., Res. Cent. for New Bio-Materials in Agric.,
Seoul Nat. Univ., Suwon 441-744, Korea
SO Journal of Food Science, (1994) 59 (5) 1072-1076, 1080, 28 ref.
ISSN: 0022-1147.
DT Journal
LA English

L5 ANSWER 3 OF 22 FSTA COPYRIGHT 2000 IFIS
AN 88(06):G0001 FSTA FS FSTA
TI Novo's handbook of practical biotechnology.
AU Boyce, C. O. L. (Editor)
CS Bagsvaerd, Denmark; Novo Industri AS
SO (1986) Ed. 2, 125pp., many ref.
DT Book (Book)
LA English

L5 ANSWER 4 OF 22 FSTA COPYRIGHT 2000 IFIS
AN 82(12):M1480 FSTA FS FSTA
TI Cereals '82. Abstracts. 7th World cereal and **bread** congress.
AU Czechoslovakia, General Management of Flour Milling & Baking Industries;
International Association for Cereal Chemistry; Meredith, P.; Seibel, W.;
Brummer, J.-M.; Stephan, H.; Kruger, J. E.; Tipples, K. H.; Grandvoinnet,
P.; Berger, M.; Appolonia, B. d'; Chamberlain, N.; Collins, T. H.;
McDermott, E. E.; Kulp, K.; Warchalewski J. R.; Klockiewicz-Kaminska, E.;
Morrison, R.; Wylie, J. L.; Fujino, Y.; Ohnishi, M.; Barnes, P. J.;
Weber,
J.; Bolling, H.; El-Baya, A. W.; Drapron, R.; Acker, L.; D'Appolonia, B.
CS World Cereal & Bread Congress
SO (1982) 584pp..
DT Conference (Conference proceedings)
LA English; Czech; Russian; German; French

L5 ANSWER 5 OF 22 FROSTI COPYRIGHT 2000 LFRA
AN 512278 FROSTI
TI Preparation of **dough** and baked products.
IN Spendler T.; Nilsson L.; Fuglsang C.C.
PA Novo Nordisk AS
SO PCT Patent Application
PI WO 9953769 A1
AI 19990201
PRAI Denmark 19980420
DT Patent
LA English
SL English

L5 ANSWER 6 OF 22 FROSTI COPYRIGHT 2000 LFRA
AN 494767 FROSTI
TI Controlling the baking process and product quality with enzymes.
AU Poldermans B.; Schoppink P.
SO Cereal Foods World, 1999, (March), 44 (3), 132-135 (3 ref.)
ISSN: 0146-6283
DT Journal
LA English

L5 ANSWER 7 OF 22 FROSTI COPYRIGHT 2000 LFRA
AN 360508 FROSTI
TI Phospholipid hydrolysate and antistaling **amylase** effects on
retrogradation of starch in **bread**.
AU Kweon M.R.; Park C.S.; Auh J.H.; Cho B.M.; Yang N.S.; Park K.H.
SO Journal of Food Science, 1994, 59 (5), 1072-1076+1080 (28 ref.)
DT Journal
LA English
SL English

L5 ANSWER 8 OF 22 USPATFULL

AN 2000:34189 USPATFULL
 TI Phytase polypeptides
 IN Lassen, Soren Flensted, Copenhagen, Denmark
 Bech, Lisbeth, Hillerod, Denmark
 Ohmann, Anders, Bronshoj, Denmark
 Breinholt, Jens, Bagsvaerd, Denmark
 Fuglsang, Claus Crone, Niva, Denmark
 Ostergaard, Peter Rahbek, Virum, Denmark
 PA Novo Nordick A/S, Bagsvaerd, Denmark (non-U.S. corporation)
 PI US 6039942 20000321
 AI US 1997-993359 19971218 (8)
 PRAI DK 1996-1480 19961220
 DK 1996-1481 19961220
 DK 1997-301 19970318
 DK 1997-529 19970507
 DK 1997-1388 19971201
 US 1997-46082 19970509 (60)
 US 1997-67304 19971204 (60)
 DT Utility
 LN.CNT 4185
 INCL INCLM: 424/094.600
 INCLS: 435/195.000; 435/196.000; 435/252.300; 435/320.100; 435/018.000;
 536/023.200; 536/023.700; 530/300.000; 530/350.000
 NCL NCLM: 424/094.600
 NCLS: 435/195.000; 435/196.000; 435/252.300; 435/320.100; 435/018.000;
 536/023.200; 536/023.700; 530/300.000; 530/350.000
 IC [7]
 ICM: A61K038-46
 ICS: C12N009-14; C12N001-20; C12N015-00
 EXF 424/94.6; 435/195; 435/18; 435/196; 435/252.3; 435/320.1; 536/23.2;
 536/23.7; 530/300; 530/350
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 9 OF 22 USPATFULL
 AN 2000:9380 USPATFULL
 TI Starch-emulsifier composition and methods of making
 IN Yuan, Chienkuo Ronnie, Chelmsford, MA, United States
 PA Opta Food Ingredients, Inc., Bedford, MA, United States (U.S. corporation)
 PI US 6017388 20000125
 AI US 1998-82345 19980520 (9)
 RLI Continuation-in-part of Ser. No. US 1997-783574, filed on 15 Jan 1997, now patented, Pat. No. US 5755890
 PRAI US 1996-10061 19960116 (60)
 DT Utility
 LN.CNT 1018
 INCL INCLM: 106/210.100
 INCLS: 106/215.300; 106/215.400; 426/661.000; 426/804.000
 NCL NCLM: 106/210.100
 NCLS: 106/215.300; 106/215.400; 426/661.000; 426/804.000
 IC [6]
 ICM: A23L001-0522
 ICS: C09D103-02; C08L003-02
 EXF 106/210.1; 106/215.3; 106/215.4; 127/71; 426/661; 426/804
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 10 OF 22 USPATFULL
 AN 1999:110024 USPATFULL
 TI Increasing the digestibility of food proteins by thioredoxin reduction
 IN Buchanan, Bob B., Berkeley, CA, United States
 del Val, Gregorio, Saint-Aubin/NE, Switzerland
 Lozano, Rosa M., Madrid, Spain
 Jiao, Jin-an, Ft. Lauderdale, FL, United States
 Wong, Joshua H., South San Francisco, CA, United States
 Yee, Boihon C., Walnut Creek, CA, United States

PA The Regents of the University of California, Oakland, CA, United States
(U.S. corporation)
PI US 5952034 19990914
AI US 1997-953703 19971017 (8)
RLI Continuation-in-part of Ser. No. US 1994-326976, filed on 21 Oct 1994,
now patented, Pat. No. US 5792506 which is a continuation-in-part of
Ser. No. US 1994-211673, filed on 12 Apr 1994 which is a
continuation-in-part of Ser. No. US 1992-935002, filed on 25 Aug 1992,
now abandoned which is a continuation-in-part of Ser. No. US
1991-776109, filed on 12 Oct 1991, now abandoned
DT Utility
LN.CNT 4164
INCL INCLM: 426/656.000
INCLS: 426/541.000; 426/549.000; 426/574.000; 426/581.000; 424/094.400
NCL NCLM: 426/656.000
NCLS: 424/094.400; 426/541.000; 426/549.000; 426/574.000; 426/581.000
IC [6]
ICM: A23L001-03
EXF 426/656; 426/541; 426/549; 426/574; 426/581; 424/94.4
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 11 OF 22 USPATFULL
AN 1998:95283 USPATFULL
TI Neutralization of food allergens by thioredoxin
IN Buchanan, Bob B., Berkeley, CA, United States
Kobrehel, Karoly, Montpellier, France
Yee, Boihon C., Walnut Creek, CA, United States
Lozano, Rosa, Madrid, Spain
Frick, Oscar L., San Francisco, CA, United States
Ermel, Richard W., Winters, CA, United States
PA The Regents of the University of California, Oakland, CA, United States
(U.S. corporation)
PI US 5792506 19980811
AI US 1994-326976 19941021 (8)
RLI Continuation-in-part of Ser. No. US 1994-211673, filed on 12 Apr 1994
which is a continuation-in-part of Ser. No. US 1992-935002, filed on 25
Aug 1992, now abandoned which is a continuation-in-part of Ser. No. US
1991-776109, filed on 12 Oct 1991, now abandoned
DT Utility
LN.CNT 3602
INCL INCLM: 426/656.000
INCLS: 424/094.400; 426/541.000; 426/549.000; 426/574.000; 426/581.000
NCL NCLM: 426/656.000
NCLS: 424/094.400; 426/541.000; 426/549.000; 426/574.000; 426/581.000
IC [6]
ICM: A23L001-03
EXF 426/549; 426/557; 426/618; 426/541; 426/574; 426/581; 426/656; 435/18;
435/69.1; 435/177; 435/188; 435/202; 435/210; 424/94.4
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 12 OF 22 USPATFULL
AN 1998:82581 USPATFULL
TI Enzyme stabilization by oxygen-containing block copolymers
IN Lee, James C., Memphis, TN, United States
PA Buckman Laboratories International, Inc., Memphis, TN, United States
(U.S. corporation)
PI US 5780283 19980714
AI US 1995-528610 19950915 (8)
RLI Continuation of Ser. No. US 1993-160865, filed on 3 Dec 1993, now
abandoned
DT Utility
LN.CNT 789
INCL INCLM: 435/188.000
INCLS: 510/305.000; 510/321.000; 510/393.000; 510/530.000
NCL NCLM: 435/188.000

NCLS: 510/305.000; 510/321.000; 510/393.000; 510/530.000
IC [6]
ICM: C12N009-96
ICS: C11D007-42; C11D003-386
EXF 435/188; 510/305; 510/321; 510/393; 510/530
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 13 OF 22 USPATFULL
AN 1998:14513 USPATFULL
TI Dry yeast compositions and processes for preparing the same
IN Groenendaal, Jan Willem, Delft, Netherlands
PA Gist-brocades, N.V., The Netherlands, United States (U.S. corporation)
PI US 5716654 19980210
AI US 1994-363624 19941223 (8)
PRAI EP 1993-203697 19931224
DT Utility
LN.CNT 389
INCL INCLM: 426/062.000
INCLS: 426/061.000; 426/089.000; 426/096.000; 426/099.000; 426/549.000
NCL NCLM: 426/062.000
NCLS: 426/061.000; 426/089.000; 426/096.000; 426/099.000; 426/549.000
IC [6]
ICM: A23L001-28
EXF 426/61; 426/62; 426/89; 426/96; 426/549; 426/18; 426/19; 426/60;
426/99;
426/555

L5 ANSWER 14 OF 22 USPATFULL
AN 96:65469 USPATFULL
TI **Phospholipase A1**, process for its preparation and the use
thereof
IN Hattori, Atsushi, Tokyo, Japan
Uchida, Noriyoshi, Tokyo, Japan
Kitaoka, Masahiro, Tokyo, Japan
PA Sankyo Company, Limited, Tokyo, Japan (non-U.S. corporation)
PI US 5538874 19960723
AI US 1994-318383 19941005 (8)
RLI Division of Ser. No. US 1993-78009, filed on 15 Jun 1993, now patented,
Pat. No. US 5378623
PRAI JP 1992-156264 19920616
JP 1993-13508 19930129
DT Utility
LN.CNT 1139
INCL INCLM: 435/128.000
INCLS: 435/131.000; 435/198.000
NCL NCLM: 435/128.000
NCLS: 435/131.000; 435/198.000
IC [6]
ICM: C12P013-00
ICS: C12P009-00; C12N009-20
EXF 435/128; 435/131; 435/198
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 15 OF 22 USPATFULL
AN 96:45940 USPATFULL
TI **Phospholipase A1**, process for its preparation
IN Hattori, Atsushi, Tokyo, Japan
Uchida, Noriyoshi, Tokyo, Japan
Kitaoka, Masahiro, Tokyo, Japan
PA Sankyo Company, Limited, Tokyo, Japan (non-U.S. corporation)
PI US 5521080 19960528
AI US 1995-410040 19950323 (8)
RLI Division of Ser. No. US 1994-318383, filed on 5 Oct 1994 which is a
division of Ser. No. US 1993-78009, filed on 15 Jun 1993, now patented,
Pat. No. US 5378623, issued on 3 Jan 1995

PRAI JP 1992-156264 19920616
JP 1993-13508 19930129
DT Utility
LN.CNT 1232
INCL INCLM: 435/198.000
INCLS: 435/128.000; 435/131.000
NCL NCLM: 435/198.000
NCLS: 435/128.000; 435/131.000
IC [6]
ICM: C12N009-16
ICS: C12N009-20; C12P013-00; C12P009-00
EXF 435/128; 435/131; 435/198
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 16 OF 22 USPATFULL
AN 95:1526 USPATFULL
TI **Phospholipase A1**, process for its preparation and the use thereof
IN Hattori, Atsushi, Tokyo, Japan
Uchida, Noriyoshi, Tokyo, Japan
Kitaoka, Masahiro, Tokyo, Japan
PA Sankyo Company, Limited, Tokyo, Japan (non-U.S. corporation)
PI US 5378623 19950103
AI US 1993-78009 19930615 (8)
PRAI JP 1992-156264 19920616
JP 1993-13508 19930129
DT Utility
LN.CNT 1263
INCL INCLM: 435/198.000
INCLS: 435/128.000; 435/131.000
NCL NCLM: 435/198.000
NCLS: 435/128.000; 435/131.000
IC [6]
ICM: C12N009-20
ICS: C12P013-00; C12P009-00
EXF 435/198; 435/128; 435/131; 435/134
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 17 OF 22 USPATFULL
AN 94:90958 USPATFULL
TI Stabilized liquid enzymatic compositions
IN Jaquess, Percy A., Tigrett, TN, United States
PA Buckman Laboratories International, Inc., Memphis, TN, United States (U.S. corporation)
PI US 5356800 19941018
AI US 1992-983360 19921130 (7)
DT Utility
LN.CNT 863
INCL INCLM: 435/188.000
INCLS: 252/546.000; 252/545.000; 252/DIG.012
NCL NCLM: 435/188.000
NCLS: 510/321.000; 510/393.000; 510/530.000
IC [5]
ICM: C12N009-96
ICS: C11D001-18
EXF 435/188; 252/546; 252/545; 252/DIG.12
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 18 OF 22 USPATFULL
AN 93:3379 USPATFULL
TI Water-in-oil emulsion composition for bakery
IN Tanaka, Shinji, Tokyo, Japan
Okutomi, Yasuo, Tokyo, Japan
Endo, Amane, Tokyo, Japan
PA Asahi Denka Kogyo Kabushiki Kaisha, Tokyo, Japan (non-U.S. corporation)

PI US 5178897 19800112
AI US 1991-767834 19910930 (7)
PRAI JP 1990-267427 19901004
DT Utility
LN.CNT 456
INCL INCLM: 426/602.000
INCLS: 426/601.000
NCL NCLM: 426/602.000
NCLS: 426/601.000
IC [5]
ICM: A23D007-00
EXF 426/601; 426/602

L5 ANSWER 19 OF 22 USPATFULL
AN 92:33926 USPATFULL
TI Composition for improving the properties of **dough** and method
of using same
IN Maat, Jan, Monster, Netherlands
Roza, Martinus, Strijen, Netherlands
PA Van den Bergh Foods Co., Lisle, IL, United States (U.S. corporation)
PI US 5108765 19920428
AI US 1990-498260 19900323 (7)
RLI Continuation-in-part of Ser. No. US 1990-485416, filed on 27 Feb 1990,
now abandoned
PRAI GB 1989-6837 19890323
DT Utility
LN.CNT 212
INCL INCLM: 426/020.000
INCLS: 426/062.000; 426/064.000; 426/549.000
NCL NCLM: 426/020.000
NCLS: 426/062.000; 426/064.000; 426/549.000
IC [5]
ICM: A21D002-00
ICS: A21D008-04
EXF 426/20; 426/61; 426/62; 426/64; 426/549
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 20 OF 22 USPATFULL
AN 87:13224 USPATFULL
TI Preparation of improved **bread** with gamma-glutamyl transferase
IN Inoue, Seiji, Machida, Japan
Ota, Shigenori, Komae, Japan
PA Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan (non-U.S. corporation)
PI US 4645672 19870224
AI US 1984-619920 19840612 (6)
PRAI JP 1983-108847 19830617
DT Utility
LN.CNT 618
INCL INCLM: 426/020.000
INCLS: 435/193.000; 435/198.000
NCL NCLM: 426/020.000
NCLS: 435/193.000; 435/198.000
IC [4]
ICM: A21D008-04
ICS: C12N009-10; C12N009-20
EXF 426/18; 426/19; 426/20; 426/22; 426/26; 426/27; 435/189; 435/193;
435/198; 435/212
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L5 ANSWER 21 OF 22 USPATFULL
AN 86:4886 USPATFULL
TI **Bread** or other cereal-based food improver composition
involving the addition of **phospholipase A** to the flour
IN Inoue, Seiji, Machida, Japan
Ota, Shigenori, Komae, Japan

PA Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan (non-U.S. corporation)
 PI US 4567046 19821128
 AI US 1983-548514 19831103 (6)
 PRAI JP 1982-197098 19821110
 DT Utility
 LN.CNT 720
 INCL INCLM: 426/020.000
 NCL NCLM: 426/020.000
 IC [4]
 ICM: A21D008-04
 EXF 426/20; 435/186

 L5 ANSWER 22 OF 22 USPATFULL
 AN 79:12943 USPATFULL
 TI Process for the separation of enzymes
 IN Kula, Maria-Regina, Wolfenbuttel, Germany, Federal Republic of
 Kroner, Karl-Heinz, Wolfenbuttel, Germany, Federal Republic of
 Stach, Wolfgang, Salzgitter-Barum, Germany, Federal Republic of
 Hustedt, Helmut, Meine, Germany, Federal Republic of
 Durekovic, Andija, Zagreb, Yugoslavia
 Grandja, Stefica, Sesvete, Yugoslavia
 PA Gesellschaft fur Biotechnologische Forschung, Braunschweig-Stockheim,
 Germany, Federal Republic of (non-U.S. corporation)
 PI US 4144130 19790313
 AI US 1977-787312 19770414 (5)
 PRAI DE 1976-2616584 19760414
 DE 1976-2639129 19760831
 DT Utility
 LN.CNT 1383
 INCL INCLM: 195/066.000R
 NCL NCLM: 435/183.000
 NCLS: 435/209.000; 435/210.000; 435/814.000
 IC [2]
 ICM: C07G007-028
 EXF 195/66R; 195/68
 CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> d 1-7 all

L5 ANSWER 1 OF 22 FSTA COPYRIGHT 2000 IFIS
 AN 2000(04):M0506 FSTA FS FSTA
 TI Preparation of **dough** and baked products.
 AU Spendler, T.; Nilsson, L.; Fuglsang, C. C.
 CS Novo Nordisk A/S
 SO PCT International Patent Application
 PI WO 99/53769 A1 1999
 PRAI DK 98-0543 20 Apr. 1998 (Novo Nordisk, DK-2880 Bagsvaerd, Denmark)
 DT Patent (Patent)
 LA English
 AB Adding anti-staling **amylase** to **dough** reduces the rate
 of crumb firming during storage for 1-7 days post-baking. A method to
 improve softness in the initial post-baking period, particularly for the
 first 24 h is described. Addition of **phospholipase** to
 anti-staling **amylase** treated **dough** gives softer
bread, both when eaten on the same day and when stored for several
 days post baking. No significant change is seen in taste or smell of the
 baked product.
 CC M (Cereals and Bakery Products)
 CT **AMYLASES; BREAD; DOUGH; LIPASES; PATENTS;**
STALING; BREAD DOUGH; PHOSPHOLIPASES

 L5 ANSWER 2 OF 22 FSTA COPYRIGHT 2000 IFIS
 AN 95(03):M0083 FSTA FS FSTA

TI Phospholipid hydrolysate and antistaling **amylase** effects on
 retrogradation of starch in **bread**.
 AU Kweon, M. R.; Park, C. S.; Auh, J. H.; Cho, B. M.; Yang, N. S.; Park, K.
 H.
 CS Dep. of Food Sci. & Tech., Res. Cent. for New Bio-Materials in Agric.,
 Seoul Nat. Univ., Suwon 441-744, Korea
 SO Journal of Food Science, (1994) 59 (5) 1072-1076, 1080, 28 ref.
 ISSN: 0022-1147.
 DT Journal
 LA English
 AB Effects of phospholipid hydrolysate and antistaling **amylase** on
 starch retrogradation in **bread** and wheat flour were investigated
 by DSC. Phospholipid hydrolysate containing >90% lysophospholipid was
 obtained using **phospholipase A2** and was effective in forming
 amylose-lipid complexes. Both wheat flour and **bread** containing
 phospholipid hydrolysate were retrograded to a lesser degree when stored
 at room temp. The retrogradation rate for **bread** with
 antistaling **amylase** was low. It was postulated that antistaling
amylase broke links in amylose and amylopectin, thereby promoting
 the formation of amylopectin-lipid complexes. The combined effect of
 phospholipid hydrolysate and antistaling **amylase** was greater
 than their individual effects. (IFT(HAS))
 CC M (Cereals and Bakery Products)
 CT Phospholipids; **Amylases**; Flours cereal; Starches;
 Retrogradation; **Bread**; Wheat; STARCH; WHEAT FLOUR; Lipids;
 Enzymes; Cereal products; Carbohydrates; Bakery products; Cereals

 L5 ANSWER 3 OF 22 FSTA COPYRIGHT 2000 IFIS
 AN 88(06):G0001 FSTA FS FSTA
 TI Novo's handbook of practical biotechnology.
 AU Boyce, C. O. L. (Editor)
 CS Bagsvaerd, Denmark; Novo Industri AS
 SO (1986) Ed. 2, 125pp., many ref.
 DT Book (Book)
 LA English
 AB This handbook is presented in 5 sections, i.e. enzyme basics (pp. 1-17),
 development strategy (pp. 18-29), industrial profiles (pp. 30-61), enzyme
 classes (pp. 62-100) and enzyme techniques (pp.101-125). Each section is
 divided into individual chapters, as follows: Why consider using
 enzymes?
 (pp. 1-5, 16 ref.); Industrial enzyme reactions (pp. 6-7, 2 ref.);
 Immobilized enzymes (pp. 8-10, 4 ref.); What's in an enzyme data sheet?
 (pp. 11-16); Enzyme activity - how strong is your enzyme? (pp. 16-17); A
 strategy for getting started (pp. 19-21); Development checklist (pp.
 21-23); Planning your in-depth experiment (pp. 23-27); Comparing enzymes
 (pp. 27-29); Brewing with barley (pp. 31-35, 3 ref.); Making sweeteners
 from starch (pp. 35-41, 9 ref.); Fish stickwater hydrolysis (pp. 42-45, 2
 ref.); Enzyme modified dairy products (pp. 45-47, 6 ref.); Enzymes for
 fruit juice processing (pp. 51-54, 3 ref.); Retarding staling of white
bread (pp. 58-61, 6 ref.); Proteases - enzymes that hydrolyze
 proteins (pp. 63-69, 7 ref.); **Amylases** - enzymes that hydrolyze
 starch (pp. 70-76, 5 ref.); Cellulases - enzymes that hydrolyze fiber
 (pp.
 77-89, 9 ref.); Isomerases - enzymes that rearrange molecules (pp. 90-91,
 6 ref.); Lipases/**phospholipases** - enzymes that hydrolyze fats
 and oils (pp. 92-95, 10 ref.); Redox enzymes - enzymes that reduce or
 oxidize molecules (pp. 96-99, 4 ref.); Regulatory status of enzymes (p.
 100); Getting the most out of your enzyme (pp. 101-103); Methods for
 monitoring protease reactions (pp. 104-109, 11 ref.); Methods for
 monitoring carbohydrase reactions (pp. 110-114, 15 ref.); Methods for
 monitoring lipase reactions (pp. 115-122, 15 ref.); Safety tips (pp.
 123-124); and Metering enzymes in the plant (pp. 124-125, 3 ref.). (LJW)
 CC G (Catering, Speciality and Multicomponent Foods)
 IT Product technology; biotechnology, handbook of, Book
 IT Books; biotechnology, handbook of

L5 ANSWER 4 OF 22 FSTA COPYRIGHT 2000 IFIS
 AN 82(12):M1480 FSTA FS FSTA
 TI Cereals '82. Abstracts. 7th World cereal and **bread** congress.
 AU Czechoslovakia, General Management of Flour Milling & Baking Industries;
 International Association for Cereal Chemistry; Meredith, P.; Seibel, W.;
 Brummer, J.-M.; Stephan, H.; Kruger, J. E.; Tipples, K. H.; Grandvoinnet,
 P.; Berger, M.; Appolonia, B. d'; Chamberlain, N.; Collins, T. H.;
 McDermott, E. E.; Kulp, K.; Warchalewski J. R.; Klockiewicz-Kaminska, E.;
 Morrison, R.; Wylie, J. L.; Fujino, Y.; Ohnishi, M.; Barnes, P. J.;
 Weber,
 J.; Bolling, H.; El-Baya, A. W.; Drapron, R.; Acker, L.; D'Appolonia, B.
 CS World Cereal & Bread Congress
 SO (1982) 584pp..
 DT Conference (Conference proceedings)
 LA English; Czech; Russian; German; French
 AB [Continued from preceding abstr.] Biochemical and physiological aspects
 of
 field-sprouting of wheat, by P. Meredith (No. S 53). Effect of sprout
 damaged rye flour on the quality of rye and rye-mixed **bread**, by
 W. Seibel, J.-M. Brummer & H. Stephan (No. S 54). Some experiences with
 monitoring alpha-**amylase** levels in Canadian wheats, by J. E.
 Kruger & K. H. Tipples (No. S 55). French breadmaking with French
 sprouted
 damaged wheat, by P. Grandvoinnet & M. Berger (No. S 56). Sprouting in
 hard red spring and durum wheats analytical and quality considerations,
 by
 B. D'Appolonia (No. S 57). The influence of alpha-**amylase** on
 loaf properties in the UK, by N. Chamberlain, T. H. Collins & E. E.
 McDermott (No. S 58). Changes in baking potential of starch and gluten
 wheat flour components caused by preharvest sprout damage, by K. Kulp
 (No.
 S 59). The influence of alpha-**amylase** supplementation gamma
 irradiation (60Co) as well as long time wheat storage on rheological and
bread baking performance of flours, by J. R. Warchalewski & E.
 Klockiewicz-Kaminska (No. S 60). Distribution of lipids in the wheat
 grain
 and flour millstreams: control of lipid composition through milling and
 by
 the genetic selection of the wheat, by R. Morrison & J. L. Wylie (No. S
 61). Novel glycolipids in cereals, by Y. Fujino & M. Ohnishi (No. S 62).
 Cereal tocopherols, by P. J. Barnes (No. S 63). Genetics and cereal
 lipids, by J. Weber (No. S 64). Changes in the lipid composition during
 germination and ripening of grain, by H. Bolling & A. W. El-Baya (No. S
 65). Characteristics of lipolytic activity of cereals, by R. Drapron (No.
 S 66). The **phospholipases** of cereals, their properties and their
 influence on cereal lipids, by L. Acker (No. S 67). [Continued in
 following abstr.] (HBr)
 CC M (Cereals and Bakery Products)
 IT Cereals; aspects of cereals, Proceedings
 IT Conference proceedings; cereals, aspects of

L5 ANSWER 5 OF 22 FROSTI COPYRIGHT 2000 LFRA
 AN 512278 FROSTI
 TI Preparation of **dough** and baked products.
 IN Spendler T.; Nilsson L.; Fuglsang C.C.
 PA Novo Nordisk AS
 SO PCT Patent Application
 PI WO 9953769 A1
 AI 19990201
 PRAI Denmark 19980420
 DT Patent
 LA English
 SL English
 AB Anti-staling **amylase** reduces the rate of crumb firming during

storage of **bread** but it has been shown that, during the initial period (about 24 hours) after baking, there is a need to improve **bread** softness. This invention is designed to produce **bread** or a bakery product with improved softness, when eaten on the same day, and when eaten after several days' storage. This is achieved by the combination of an anti-staling **amylase** and **phospholipase**.

CT **AMYLASES**; ANTISTALING AGENTS; BAKERY ADDITIVES; ENZYMES;
LIPASES; MIXTURES; PATENT; PCT PATENT; **PHOSPHOLIPASES**
DED 21 Jan 2000

L5 ANSWER 6 OF 22 FROSTI COPYRIGHT 2000 LFRA
AN 494767 FROSTI
TI Controlling the baking process and product quality with enzymes.
AU Poldermans B.; Schoppink P.
SO Cereal Foods World, 1999, (March), 44 (3), 132-135 (3 ref.)
ISSN: 0146-6283
DT Journal
LA English

AB The use of enzymes in bakery products for improving both the processing properties of the **dough** and product quality and shelf-life is discussed. Enzymes are natural substances and only small amounts are required, although development is costly and the manufacturer must understand their various functions. The characteristics, functions, and applications of alpha-**amylase**, hemicellulase, glucose oxidase, lipase, and proteases in bakery products are described. New enzymes in the process of development include ferulic acid esterase, mannanase, cyclodextrin glucosyl transferase, various oxidases, **phospholipase**, transglutaminase, laccase, and protein disulfide isomerase.

SH CEREAL PRODUCTS
CT **ALPHA AMYLASE**; **AMYLASES**; APPLICATIONS; BAKERY
PRODUCTS; ENZYMES; GLUCOSE OXIDASE; HEMICELLULASES; LIPASES; PROTEINASES
DED 28 May 1999

L5 ANSWER 7 OF 22 FROSTI COPYRIGHT 2000 LFRA
AN 360508 FROSTI
TI Phospholipid hydrolysate and antistaling **amylase** effects on retrogradation of starch in **bread**.
AU Kweon M.R.; Park C.S.; Auh J.H.; Cho B.M.; Yang N.S.; Park K.H.
SO Journal of Food Science, 1994, 59 (5), 1072-1076+1080 (28 ref.)
DT Journal
LA English
SL English

AB The effects of phospholipid hydrolysate and anti-staling **amylase** on starch retrogradation in **bread** and wheat flour were examined by differential scanning calorimetry (DSC). Phospholipid hydrolysate obtained using **phospholipase** A2 contained more than 90% lysophospholipid. The peak area between 100 and 130 C increased in DSC thermograms in the presence of lysophospholipid or phospholipid hydrolysate, and both were found to be effective in the formation of amylose-lipid complexes in wheat flour. Wheat flour and **bread** containing phospholipid hydrolysate had delayed retrogradation, while

the retrogradation rate for **bread** with anti-staling **amylase** was also low. Combination of phospholipid hydrolysate and anti-staling **amylase** retarded retrogradation even further.

SH PHYSICAL AND SENSORY
CT **AMYLASES**; ANTI STALING AGENT; **BREAD**; CALORIMETRY;
DIFFERENTIAL; DIFFERENTIAL SCANNING CALORIMETRY; ENZYMES; FLOUR;
HYDROLYSATES; PHOSPHOLIPIDS; REDUCTION; RETROGRADATION; SCANNING;
STARCH;
STARCH HYDROLYSATES; WHEAT; WHEAT **BREAD**; WHEAT FLOUR; WHEAT
STARCH
DED 16 Dec 1994